Supplementary Material (ESI) for Chemical Communications

Electronic Supplementary Information (ESI)

Synthesis and characterization of **1** and **2**.

$[Mn^{II}(Ni^{II}L)_2]\cdot 2CH_3OH$ (**1**): $Mn^{II}Cl_2\cdot 4H_2O$ (0.02 g, 0.1 mmol) in methanol (30 cm^3) and Et_3N (0.02 g, 0.2 mmol) in methanol (20 cm^3) were added to a methanol solution (50 cm^3) of $[Ni^{II}(HL)]$ (0.097 g, 0.2 mmol). The mixture was left at room temperature for three days to form orange crystals. Yield: 0.052 g (48%). Anal.: calcd for $C_{54}H_{56}N_6Ni_2MnO_8 = [Mn^{II}(Ni^{II}L)_2]\cdot 2CH_3OH$: C 59.54, H 5.18, N 7.71, Ni 10.78, Mn 5.04%; found: C 59.37, H 4.30, N 7.74, Ni 10.78, Mn 5.09%. IR (KBr): ν(C=N) 1628 cm^{-1}. Λ_M: 2.01 S mol^{-1} cm^2 in DMF (ca. 0.4 mM). UV-Vis (DMSO): 555 (log ε/M^{-1} cm^{-1}: 59) and 368 nm (4.41).

$[Fe^{III}(Ni^{II}L)_2](NO_3)\cdot C_2H_5OH$ (**2**): $Fe^{III}(NO_3)_3\cdot 9H_2O$ (0.04 g, 0.1 mmol) in ethanol (10 cm^3) and Et_3N (0.02 g, 0.02 mmol) in ethanol (10 cm^3) were added to an ethanol solution (40 cm^3) of $[Ni^{II}(HL)]$ (0.097 g, 0.2 mmol). The mixture was left in a refrigerator for two weeks to form dark purple crystals. Yield: 0.043 g (38%). Anal.: calcd for $C_{54}H_{54}FeN_7Ni_2O_{10} = [Fe^{III}(Ni^{II}L)_2]NO_3\cdot C_2H_5OH$: C 57.18, H 4.80, N 8.64, Ni 10.35%; found: C 57.04, H 3.90, N 8.73, Ni 10.14%. IR (KBr): ν(C=N) 1631; $\nu(NO_2)$ 1278 cm^{-1}. Λ_M: 55 S mol^{-1} cm^2 in DMF (ca. 0.4 mM). UV-Vis (DMSO): 514 nm (log ε/M^{-1} cm^{-1}: 3.64) and 344 nm (4.46).

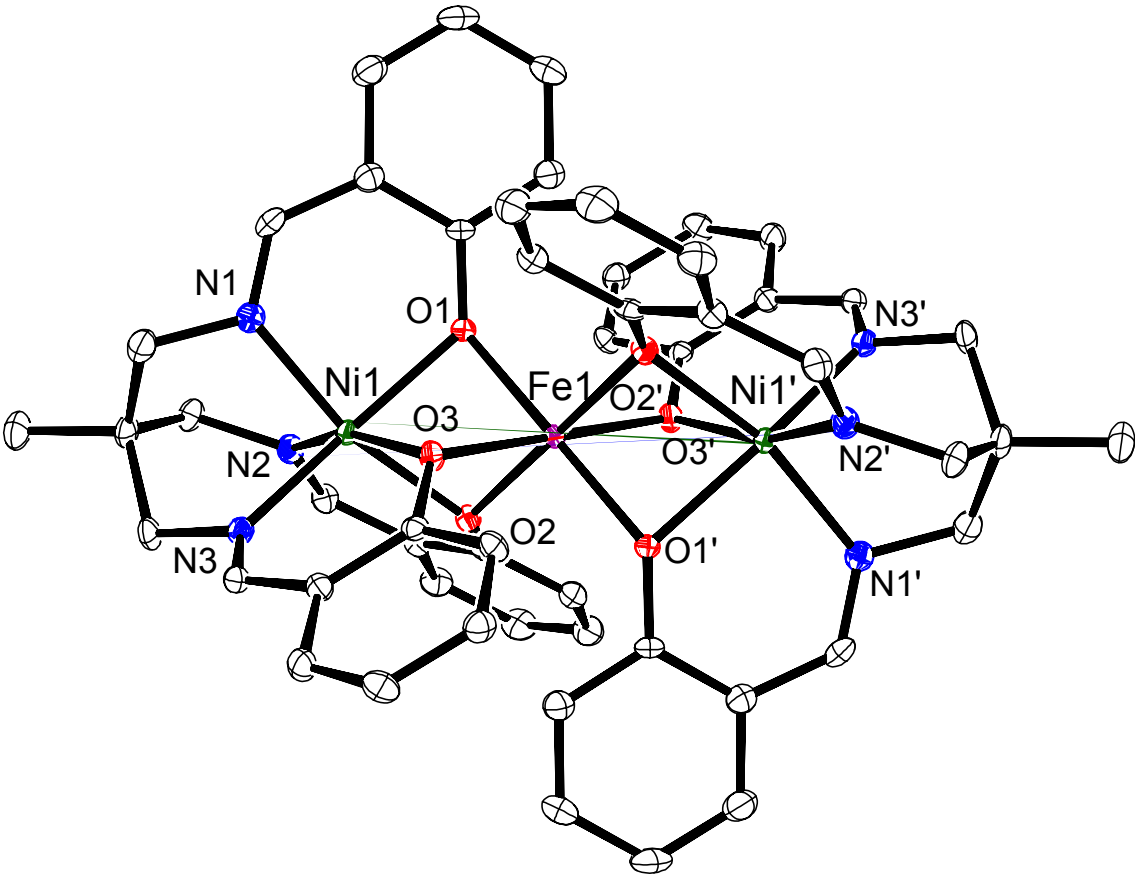

Fig. S1. X-ray molecular structure of **2**.

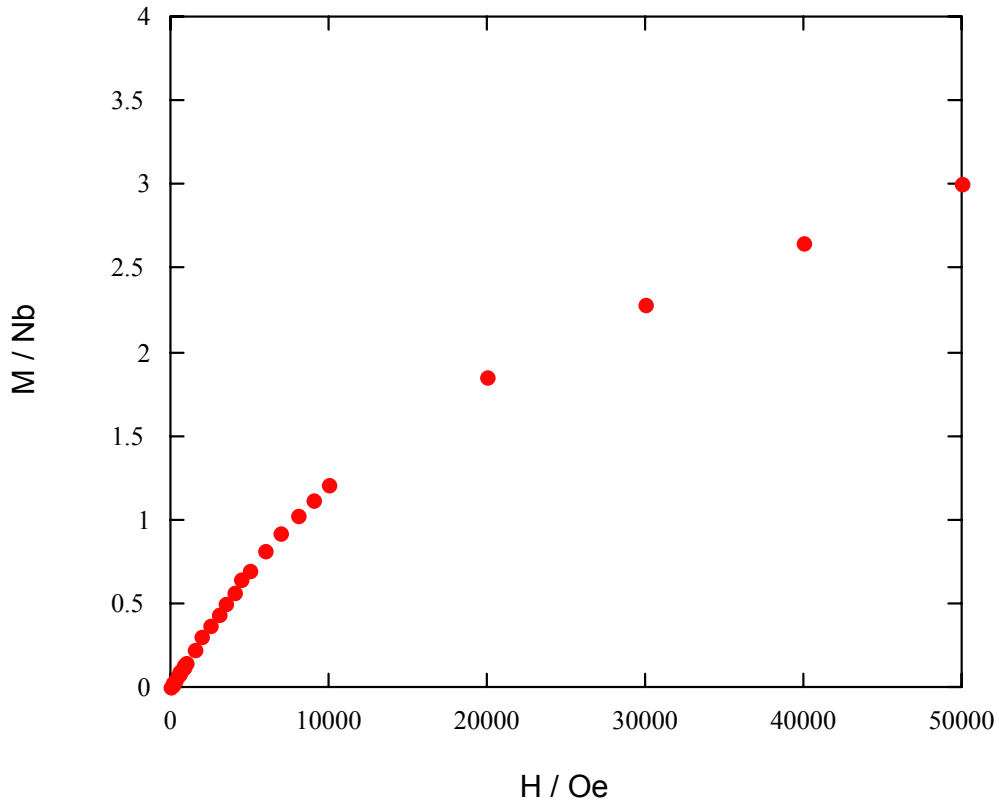

Fig. S2. Field dependence of magnetization at 1.9 K for **2**.